

Having thus described our invention, what we claim as new, and desire to secure by letters Patent is:

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data charging system comprising:

a content generator for generating contents containing object data,

a recording medium for recording the charging data used for charging for said object data and the recognition data used for recognition of the object data, and

a data charging apparatus for charging for the use of said object data by using said charging data and said recognition data recorded;

wherein said data charging apparatus comprises:

data reading logic for reading said recognition data and said charging data from said recording medium,

a separator for separating said object data from said contents,

an recognition logic for recognizing said separated object data by using said recognition data read out,

an accounting logic for charging for the use of said recognized object data by using said charging data read out, and

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a	writing	logic	for	writin	g, as	said	char	ging	data,
th	eresult	s of cl	nargi	ng for	the u	se of	said	recog	gnized
ob	iect dat	a into	sai	d recor	ding r	mediur	n.		

- 2. A content generator for embedding digital watermarks in object data and generating contents in a data charging system which records, on a recording medium, the charging data used for charging for object data contained in said contents and the recognition data used for recognizing the object data and charges only for the use of the object data embedded with said digital watermarks by using said charging data and said recognition data recorded.
- 3. In a data charging system which records, on a recording medium, the charging data used for charging for object data contained in said contents and the recognition data used for recognizing the object data and charges for the use of said object data by using said charging data and said recognition data recorded,

a data charging apparatus comprising:

a data reading logic for reading said recognition data and said charging data from said recording medium,

a separator for separating said object data from \said contents,

16		an recognition logic for recognizing said separated
17		object data by using said recognition data read out,
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19		an accounting logic for charging for the use of said
20		recognized object data by using said charging data
21		read out, and
22		
23		a writing logic for writing, as said charging data,
24		the results of charging for the use of said recognized
25		object data into said recording medium.
1	4.	The data charging apparatus according to Claim 3,
2		wherein said contends comprise said object data and
3		said recognition data for recognizing this object
4		data,
5		
6		said separator separates said object data and said
7		recognition data from said contents,
8		
9		said recognition logic recognizes said object data,
10		based on said recognition data separated from said
11		contents and on said recognition data read out from
12		said recording medium, and $igg angle$
13		
14		said accounting logic charges for said object data by
15		using said charging data read out.
1	5.	The data charging apparatus according to Claim 3,
2		further comprising a watermarking logic for embedding

digital watermarks in said object data separated from

said contents, wherein said separator separates said

5		object data and said recognition data from said
6		contents,
7		
8		said recognition logic recognizes said object data,
9		based on said recognition data separated from said
10		contents and on said recognition data read out from
11		said recording medium, and
12		
13		said accounting logic charges for said object data
14		embedded with said digital watermarks.
1	6.	The data charging apparatus according to Claim 3,
2		wherein a digital watermark is embedded in said object
3		data in said contents,
4	• •	
5	•	said data charging apparatus further comprising a
6		means for detecting if said object data is embedded
7		with said digital watermark,
8		
9		said separator separating said object data and said
10		recognition data from said contents,
11		
12		said recognition logic recognizing said object data,
13		based on said recognition data separated from said
14		contents and on said recognition data\read out from
15		said recording medium, and
16		
17		said accounting logic charging for said object data
18		only if said object data is found to be embedded with
19		said digital watermark.

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1	7. The data charging apparatus according to Claim 3,
2	wherein said charging data recorded on said recording
3	medium contains at least payment data which indicates
4	the payment made in advance for the use of said object
.5	data, and
6	
7	said accounting logic charges for the use of said
8	object data within the limits of the amount indicated
9	by said payment data contained in said charging data.
1	8. The data charging apparatus according to Claim 7,
2	wherein said charging data recorded on said recording

to Claim 7, aid recording medium further contains unit price data representing the accounting unit for the use of said object data and the price corresponding to the accounting unit,

said data charging apparatus comprising an accounting unit detection logic for detecting unit accounting amount data which represents the amount of said accounting unit for the object data separated from said contents,

said accounting logic charging within the limits of the amount indicated by said payment data, based on said unit price data contained in said charging data read out and on the unit accounting amount data detected.

The data charging apparatus according to Claim 7, wherein said charging data recorded on said recording medium further contains unit price data representing

the accounting unit for the use of said object data 4 and the price corresponding to the accounting unit as 5 6 well as accounting range data which represents the range of one billing, 7 8 9 said data charging apparatus comprising an accounting 10 unit detection logic for detecting unit accounting amount data which represents the amount of said 11 accounting unit for the object data separated from 12 said contents, wherein 13 14 said accounting logic charging each time within the 15 limits of the amount indicated by said payment data, 16 based on said unit price data contained in said 17 charging data read out \and on the unit accounting 18 19 amount data detected. A data charging method for generating contents which 10. 1 2 contain object data and recognition data used for the recognition of this object data, recording the 3 charging data used for charging for said object data 4 5 and the recognition data used for recognition of the 6 object data, and charging for the use of said object 7 data by using said charging data and said recognition data recorded, comprising the steps of 8 9 reading said recognition data and said charging data 10 11 from said recording medium, 12 separating said object data from said contents,

15		recognizing said separated object data by using said
16		recognition data read out,
17		
18		charging for the use of said recognized object data
19		by using said charging data read out; and
20		
21		writing, as said charging data, the results of
22		charging for the use of said recognized object data
23		into said recording medium.
1	11.	A data charging method according to Claim 10, wherein
2		said object data in said contents are embedded with
3		digital watermarks, comprising the steps of:
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5		separating said object data and said recognition data
6		from said contents; \
7		
8		recognizing said object data, based on said
9		recognition data separated from said contents and on
10		said recognition data read out from said recording
11		medium;
12		
13		detecting said digital watermark embedded in said
14		object data; and
15		
16		charging for said recognized object data only by
17		using said charging data read out if\said object data
18		is found to be embedded with said digital watermark.
1	12.	A data charging method according to Claim 10,
2		comprising the steps of:
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4		separating said object data and said recognition data
5		from said contents;
6		
7		recognizing said object data, based on said
8		recognition data separated from said contents and on
9		said recognition data read out from said recording
10		medium;
11		
12		embedding digital watermarks in said separated object
13		data; and
14		
15		charging for the use of the object data embedded with
16		said digital watermarks by using said charging data
17		read out.
. 1	13.	In a data charging apparatus of a data charging
2		system which records, on a recording medium, the
3		charging data used for charging for the object data
4		contained in contents and the recognition data used
5		for recognition of the object data, and charges for
6		the use of said object data by using said charging
7	-	data and said recognition data recorded;
8		
9		a computer program product enabling a computer to
10		execute the steps of:
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12		reading said recognition data and said charging data
13		from the recording medium,
1.4		

15		separating said object data from said contents,
16		
17		recognizing said separated object data by using said
18		recognition data read out,
19		
20		charging for the use of said recognized object data
21		by using said charging data read out, and
22		
23		writing, as said charging data, the results of
24		charging for the use of said recognized object data
25	•	into said recording medium.
1	14.	The computer program product according to Claim 13,
2		wherein said contents contain said object data and
3		said recognition data used for recognition of the
4		object data,
5		
6		said object data and said recognition data are
7		separated from said contents in said separation step,
8		
9		said object data is recognized in said recognition
10		step, based on said recognition data separated from
11		said contents and on said recognition data read out
12		from the recording medium, and
13		
14		a charge is made for said object data in said
15	·	charging step by using said charging data read out.
1	15.	The computer program product according to Claim 13,
2		wherein the computer is made to execute the step of

3		embedding digital watermarks in said object data
4		separated from said contents,
5		
6		said object data and said recognition data are
7		separated from said contents in said separation step,
8		
9		said object data is recognized in said recognition
10		step, based on said recognition data separated from
11		said contents\and on said recognition data read out
12		from the recording medium, and
13		
14		a charge is made for said object data embedded with
15		said digital watermarks in said charging step.
	•	
1	16.	The computer program product according to Claim 13,
2		wherein said object \data in said contents are
		wherein said object data in said contents are embedded with digital watermarks,
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2 3		
2 3 4		embedded with digital watermarks,
2 3 4 5		embedded with digital watermarks, the computer is further made to execute the step of
2 3 4 5 6		embedded with digital watermarks,  the computer is further made to execute the step of detecting that said object data is embedded with said
2 3 4 5 6 7		embedded with digital watermarks,  the computer is further made to execute the step of detecting that said object data is embedded with said
2 3 4 5 6 7 8		embedded with digital watermarks,  the computer is further made to execute the step of detecting that said object data is embedded with said digital watermarks,
2 3 4 5 6 7 8 9		embedded with digital watermarks,  the computer is further made to execute the step of detecting that said object data is embedded with said digital watermarks,  said object data and said recognition data are
2 3 4 5 6 7 8 9		embedded with digital watermarks,  the computer is further made to execute the step of detecting that said object data is embedded with said digital watermarks,  said object data and said recognition data are
2 3 4 5 6 7 8 9 10		embedded with digital watermarks,  the computer is further made to execute the step of detecting that said object data is embedded with said digital watermarks,  said object data and said recognition data are separated from said contents in said separation step,
2 3 4 5 6 7 8 9 10 11		embedded with digital watermarks,  the computer is further made to execute the step of detecting that said object data is embedded with said digital watermarks,  said object data and said recognition data are separated from said contents in said separation step,  said object data is recognized in said recognition
2 3 4 5 6 7 8 9 10 11 12 13		embedded with digital watermarks,  the computer is further made to execute the step of detecting that said object data is embedded with said digital watermarks,  said object data and said recognition data are separated from said contents in said separation step,  said object data is recognized in said recognition step, based on said recognition data separated from

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19		embedded with said digital watermark.
1	17.	The computer program product according to Claim 13,
2		wherein said charging data recorded on said recording
3		medium contains at least payment data which indicates
4		the payment made in advance for the use of said
5		object data, and
6		
7		prices are charged in said charging step for the use
8		of said object data within the limits of the amount
9		indicated by said payment data contained in said
10		charging data.
1	18.	The computer program product according to Claim 17,
2		wherein said charging data recorded on said recording
3		medium further contains unit price data representing
4		the accounting unit for the use of said object data
5		and the price corresponding to the accounting unit,
6		and
7		
8		a computer is made to execute the step of detecting
9		unit accounting amount data which represents the
10		amount of said accounting unit for the object data
11		separated from said contents, and $igwedge$
12		
13		prices are charged for the use of said object data
14		within the limits of the amount indicated by said
15		payment data, based on said unit price data contained
16		in said charging data read out and on the unit

charge is made for said object data in said

charging step only if said object data is found to be



accounting amount data detected in said charging step.

19. The computer program product according to Claim 17, wherein said charging data recorded on said recording medium further contains unit price data representing the accounting unit for the use of said object data and the price corresponding to the accounting unit as well as accounting range data which represents the range of one billing, and

a computer is made to execute the step of detecting unit accounting amount data which represents the amount of said accounting unit for the object data separated from said contents, and

a price is charged each time for the use of said object data within the limits of the amount indicated by said payment data, based on said unit price data contained in said charging data read out and on the unit accounting amount data detected.

